Urbanized area	Geographic center		Channel	Frequencies (megahertz)
	North latitude	West longitude		
Chicago, IL[3]	41° 52′ 28.1″	87° 38′ 22.2″	14	470–476
			15	476–482
Cleveland, OH[4]	41° 29′ 51.2″	81° 41′ 49.5″	14	470–476
			16	482–488
Dallas/Fort Worth, TX	32° 47′ 09.5″	96° 47′ 38.0″	16	482–488
Detroit, MI[5]	42° 19′ 48.1″	83° 02′ 56.7″	15	476–482
			16	482–488
Houston, TX	29° 45′ 26.8″	95° 21′ 37.8″	17	488–494
Los Angeles, CA[6]	34° 03′ 15.0″	118° 14′ 31.3″	14	470–476
			20	506–512
Miami, FL	25° 46′ 38.4″	80° 11′ 31.2″	14	470–476
New York/N.E. NJ	40° 45′ 06.4″	73° 59′ 37.5″	14	470–476
			15	476–482
Philadelphia, PA	39° 56′ 58.4″	75° 09′ 19.6″	19	500–506
			20	506–512
Pittsburgh, PA	40° 26′ 19.2″	79° 59′ 59.2″	14	470–476
			18	494–500
San Francisco/Oakland, CA	37° 46′ 38.7″	122° 24′ 43.9″	16	482–488
			17	488–494
Wash., DC/MD/VA	38° 53′ 51.4″	77° 00′ 31.9″	17	488–494
			18	494–500

[3] In the Chicago, IL, urbanized area, channel 15 frequencies may be used for paging operations in addition to low power base/mobile usages, where applicable protection requirements for ultrahigh frequency television stations are met.
[4] Channels 14 and 15 are not available in Cleveland, OH, until further order from the Commission.
[5] Channels 15 and 16 are not available in Detroit, MI, until further order from the Commission.
[6] Channel 16 is available in Los Angeles for use by public safety users.

[63 FR 68965, Dec. 14, 1998]

§ 90.305 Location of stations.

(a) The transmitter site(s) for base station(s), including mobile relay stations, shall be located not more than 80 km. (50 mi.) from the geographic center of the urbanized area listed in § 90.303.

(b) Mobile units shall be operated within 48 km. (30 mi.) of their associated base station or stations. Such units may not be operated aboard aircraft in flight except as provided for in § 90.315(i).

(c) Control stations must be located within the area of operation of the mobile units.

(d) Base and control stations shall be located a minimum of 1.6 km. (1 mi.) from local television stations operating on UHF TV channels separated by 2, 3, 4, 5, 7, and 8 TV channels from the television channel in which the base station will operate.

§ 90.307 Protection criteria.

The tables and figures listed in § 90.309 shall be used to determine the proper power (ERP) and antenna height of the proposed land mobile base station and the proper power (ERP) for the associated control station (control station antenna height shall not exceed 31 m. (100 ft.) above average terrain (AAT)).

(a) Base stations operating on the frequencies available for land mobile use in any listed urbanized area and having an antenna height (AAT) less than 152 m. (500 ft.) shall afford protection to co-channel and adjacent channel television stations in accordance with the values set out in tables A and E of this subpart, except for Channel 15 in New York, NY, and Cleveland, OH, and Channel 16 in Detroit, MI, where protection will be in accordance with the values set forth in tables B and E.

(b) For base stations having antenna heights between 152–914 meters (500–3,000 ft.) above average terrain, the effective radiated power must be reduced below 1 kilowatt in accordance with the values shown in the power reduction graph in Figure A, except for Channel 15 in New York, NY, and Cleveland, OH, and Channel 16 in Detroit, MI, where the effective radiated power must be reduced in accordance with Figure B. For heights of more than 152 m. (500 ft.) above average terrain, the distance to the radio path horizon will be calculated assuming smooth earth. If the distance so determined equals or exceeds the distance to the Grade B contour of a co-channel TV station, (Grade B contour defined

in §73.683(a)) an authorization will not be granted unless it can be shown that actual terrain considerations are such as to provide the desired protection at the Grade B contour, or that the effective radiated power will be further reduced so that, assuming free space attenuation, the desired protection at the Grade B contour will be achieved.

(c) Mobile units and control stations operating on the frequencies available for land mobile use in any given urbanized area shall afford protection to cochannel and adjacent channel television stations in accordance with the values set forth in table C and paragraph (d) of this section except for Channel 15 in New York, NY, and Cleveland, OH, and Channel 16 in Detroit, MI, where protection will be in accordance with the values set forth in table D and paragraph (d) of this section.

(d) The minimum distance between a land mobile base station which has associated mobile units and a protected adjacent channel television station is 145 km (90 miles) .

(e) The television stations to be protected (co-channel, adjacent channel, IM, and IF) in any given urbanized area, in accordance with the provisions of paragraphs (a), (b), (c), and (d) of this section, are identified in the commission's publication ''TV stations to be considered in the preparation of Applications for Land Mobile Facilities in the Band 470–512 MHz.'' The publication is available at the offices of the Federal Communications Commission at Washington, DC or upon the request of interested persons.

[43 FR 54791, Nov. 22, 1978, as amended at 49 FR 36107, Sept. 14, 1984; 58 FR 44957, Aug. 25, 1993]

§ 90.309 Tables and figures.

(a) *Directions for using the tables.* (1) Using the method specified in §73.611 or charts or maps of suitable scale, determine the distances (i) between the proposed land mobile base station and the protected cochannel television station and (ii) between the proposed land mobile base station and the protected adjacent channel television station. If the exact mileage does not appear in table A for protected cochannel television stations (or table B for Channel 15 in New York and Cleveland and channel 16 in Detroit) or table E for protected adjacent channel television stations, the next lower mileage separation figure is to be used.

(2) Entering the proper table at the mileage figure found in paragraph (a)(1) of this section, find opposite, a selection of powers that may be used for antenna heights ranging from 15 m (50 ft) to 152.5 m (500 ft) (AAT). If the exact antenna height proposed for the land mobile base station does not appear in the proper table, use the power figure beneath the next greater antenna height.

(3) The lowest power found using the tables mentioned in paragraphs (a)(1) and (a)(2) of this section is the maximum power that may be employed by the proposed land mobile base station.

(4) In determining the average elevation of the terrain, the elevations between 3.2 km (2 mi) and 16 km (10 mi) from the antenna site are employed. Profile graphs shall be drawn for a minimum of eight radials beginning at the antenna site and extending 16 km (10 mi). The radials should be drawn starting with true north. At least one radial should be constructed in the direction of the nearest cochannel and adjacent channel UHF television stations. The profile graph for each radial shall be plotted by contour intervals of from 12.2 m (40 ft) to 30.5 m (100 ft) and, where the data permits, at least 50 points of elevation (generally uniformly spaced) should be used for each radial. For very rugged terrain 61 m (200 ft) to 122 m (400 ft) contour intervals may be used. Where the terrain is uniform or gently sloping, the smallest contour interval indicated on the topographic chart may be used. The average elevation of the 12.8 km (8-mile) distance between 3.2 km (2 mi) and 16 km (10 mi) from the antenna site should be determined from the profile graph for each radial. This may be obtained by averaging a large number of equally spaced points, by using a planimeter, or by obtaining the median elevation (that exceeded by 50 percent of the distance) in sectors and averaging those values. In the preparation of the profile graphs, the elevation or contour intervals may be taken from U.S. Geological Survey Topographic